AI.FRAME

Joystick 1 Manual

Joystick 1 is an open source Bluetooth Joystick bases on an Arduino Leonardo, with an chargeable battery inside, it can be charged and programmed via USB. It is compatible with XBee module, ZigBee module and Wi-Fi module, which uses UART port to communicate with other devices. Since it is open source hardware and software, and powered by an ATMEL MEGA32U4, you are able to control robots, R/C models, aircraft and Fun-house prop.

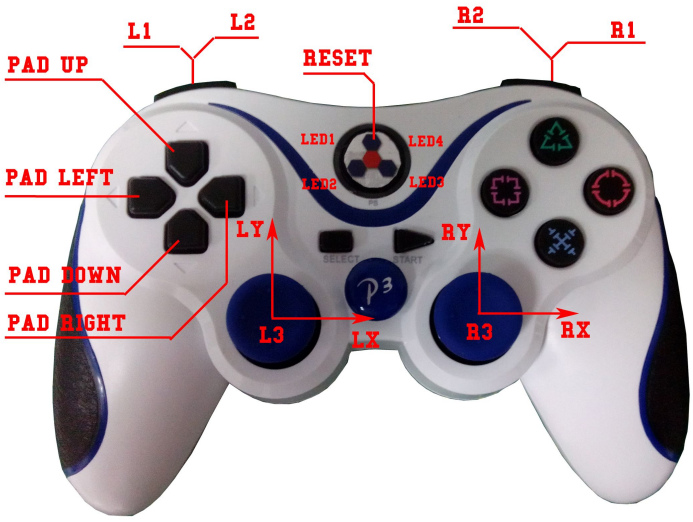
Arduino Quick Start:

http://arduino.cc/en/Guide/HomePage

Guide To Arduino Leonardo:

http://arduino.cc/en/Guide/ArduinoLeonardoMicro

Overview:



- Power switch is on the back.

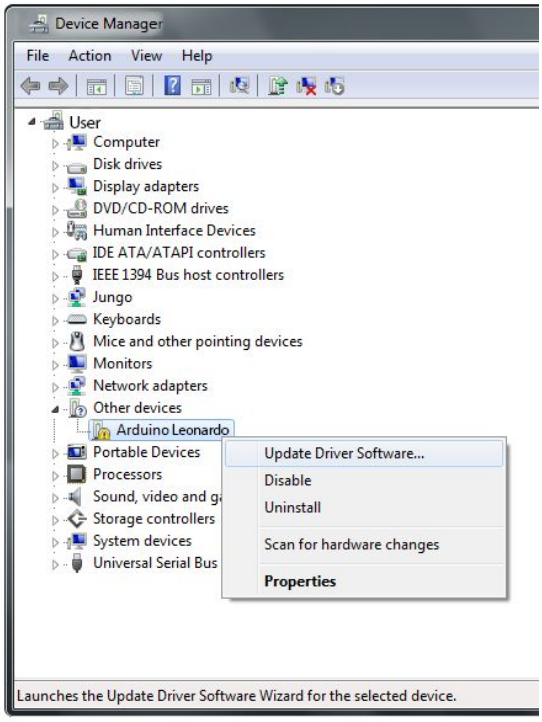
- LED1: State LED, when the buttons state changes, the LED1 blinks once. If not, the joystick needs to be charged.
- LED2: USB state LED, it is on when USB port is sending data.
- LED3: Power state LED
- LED4: Charging state LED, when the joystick is charging via USB, it is on, it goes down when charging completes.

Feathers:

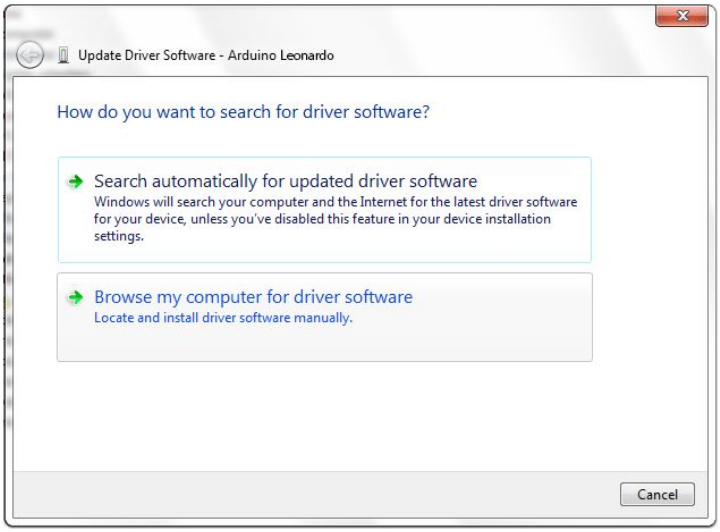
- ATMEGA32U4 based hardware
- Programmable via USB interface
- Program via USB interface with PC
- Recharging battery inside and charged via USB interface
- Bluetooth module inside, this can replaced with Zigbee, Xbee, and Wifi module by opening the outer covering
- Compatible with Arduino coding
- Open-source firmware and hardware

Install Driver:

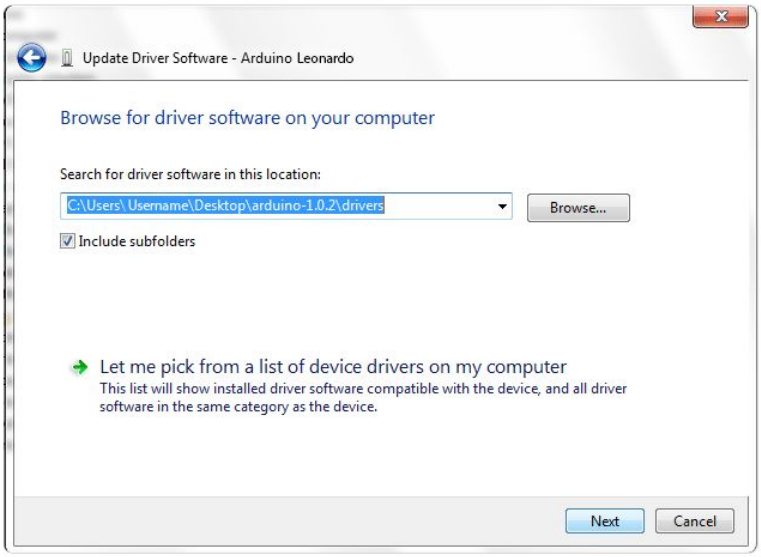
- Windows:
  The following instructions are for Windows 7. They are valid also for Windows XP, with small differences in the dialog windows.
  1. Plug in your board and wait for Windows to begin its driver installation process. If the installer does not launch automatically, navigate to the Windows Device Manager (Start > Control Panel > Hardware) and find the Arduino Leonardo listing. Right click and choose Update driver.



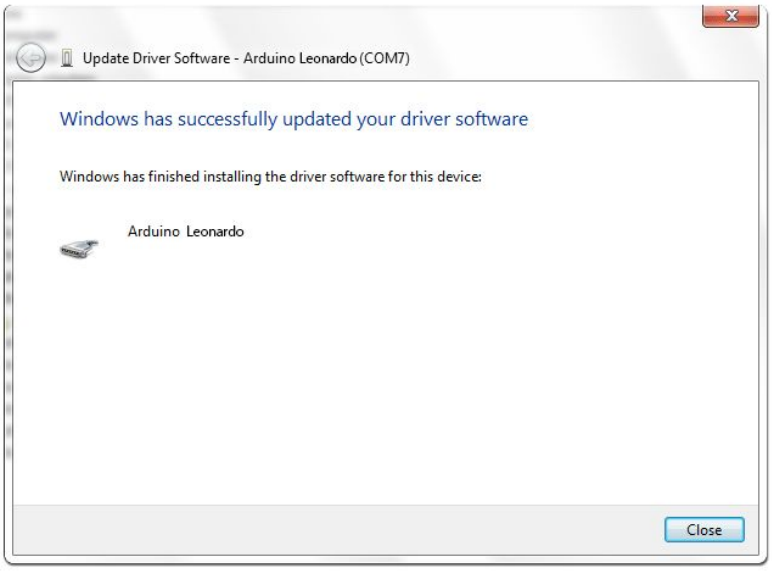
2. At the next screen, choose "Browse my computer for driver software", and click Next.



3. Click the Browse... button. Another dialog appears: navigate to the folder with the Arduino software that you just downloaded. Select the drivers folder an click OK, then click Next.



4. You will receive a notification that the board has not passed Windows Logo testing. Click on the button Continue Anyway.



5. After a few moments, a window will tell you the wizard has finished installing software for Arduino Leonardo. Press the Close button. More OS versions check out: http://arduino.cc/en/Guide/ArduinoLeonardoMicro

Control The Robot:

- Power on the Joystick and the robot at the same time, wait about 10 seconds for auto setup and connection via Bluetooth.
- Press and hold the key(s) to control the movement of the robot. When release all the buttons, robot gets back to the standby position.
- Key functions:
  1. PAD UP: Walk forward.
  2. PAD DOWN: Walk backward.
  3. PAD LEFT: Walk towards left.

4. PAD RIGHT: Walk towards right.
5. PAD UP & PAD LEFT: Walk left front
6. PAD UP & PAD RIGHT: Walk right front
7. PAD DOWN & PAD LEFT: Walk left back
8. PAD DOWN & PAD RIGHT: Walk right back
9. BUTTON TRIANGLE: Salute
10. BUTTON FORK: Squat
11. BUTTON SQUARE: Play a sword (only for Apollo)
12. BUTTON CIRCLE: Fire the rubber gun once (only for Apollo)
13. BUTTON FORK & PAD LEFT: Squat to left
14. BOTTON FORK & PAD RIGHT: Squat to right
15. BUTTON FORK & BUTTON SQUARE: Hit back (only for Apollo)
16. BUTTON TRIANGLE & BUTTON CIRCLE: Hit front (only for Apollo)
17. SELECTE: Get up when back to the ground (only for Apollo)
18. START: Get up when face to the ground (only for Apollo)
19. L1: Turn left
20. R1: Turn right
21. L2: Hit left
22. R2: Hit right
23. L1 & L2; Left hit in fast move (only for Apollo)
24. R1 & R2: Right hit in fast move (only for Apollo)
25. L3: After pressed and holden, push and drag in the LX, LY, RX and RY directions to control the left hand (only for Apollo)
26. R3: After pressed and holden, push and drag in the LX, LY, RX and RY directions to control the right hand (only for Apollo)
27. L3 & R3: After pressed and holden, push and drag in the LX, LY, RX and RY directions to control the both hands (only for Apollo)

Programming:

- Download and install the Arduino IDE for your OS version: http://arduino.cc/en/Main/Software
- Download the Firmware for Joystick 1 and open it with Arduino IDE: https://github.com/AiFrame/Joystick/tree/master/Firmware_for_Joystick1
- Select the right COM port and board version for the joystick (Arduino Leonardo)
- Do your coding: http://arduino.cc/en/Tutorial/HomePage
- Comply and upload your code to joystick: http://arduino.cc/en/Guide/Windows#toc9
- For more OS version check out: http://arduino.cc/en/Guide/HomePage

Hardware design: https://github.com/AiFrame/Joystick/tree/master/Hardware_design
Software design:

https://github.com/AiFrame/Joystick/tree/master/Firmware_for_Joystick1
Website: http://aiframe.me
Forum: http://forum.aiframe.me
E-mail: support@aiframe.me